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FILE 'HOME' ENTERED AT 11:59:51 ON 17 NOV 2008

=> index bioscience medicine

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS, CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 12:00:09 ON 17 NOV 2008

72 FILES IN THE FILE LIST IN STNINDEX

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search error messages that display as 0* with SET DETAIL OFF.

=> S ((hydroxynitrile (w) lyase) or hydroxynitrilase)
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2 FILE ANABSTR
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44 FILE BIOENG
159 FILE BIOSIS
100 FILE BIOTECHABS
100 FILE BIOTECHDS
59 FILE BIOTECHNO
56 FILE CABA
319 FILE CAPLUS
31 FILE CEABA-VTB
4 FILE CIN
4 FILE CONFSCI
1 FILE CROPB
3 FILE DDFB
1 FILE DDFU
568 FILE DGENE
9 FILE DISSABS
3 FILE DRUGB
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132 FILE USGENE
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66 FILES SEARCHED...
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46 FILE WPINDEX
1 FILE NLDB

42 FILES HAVE ONE OR MORE ANSWERS, 72 FILES SEARCHED IN STNINDEX

L1 QUE ((HYDROXYNITRILE (W) LYASE) OR HYDROXYNITRILASE)

=> d rank
F1 568 DGENE

F2 506 GENBANK
F3 319 CAPLUS
F4 240 SCISEARCH
F5 159 BIOSIS
F6 132 USGENE
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F8 100 BIOTECHABS
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FILE 'CAPLUS' ENTERED AT 12:02:19 ON 17 NOV 2008
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FILE 'SCISEARCH' ENTERED AT 12:02:19 ON 17 NOV 2008

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FILE 'EMBASE' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'BIOTECHABS' ACCESS NOT AUTHORIZED

FILE 'MEDLINE' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'ESBIOBASE' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'USPATFULL' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'PASCAL' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'BIOTECHNO' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'CABA' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'TOXCENTER' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'LIFESCI' ENTERED AT 12:02:19 ON 17 NOV 2008

FILE 'WPIDS' ENTERED AT 12:02:19 ON 17 NOV 2008

=> S L1
L2 1409 L1

=> S (modif? or mutant or variant or substitut?)(s) L2
L3 157 (MODIF? OR MUTANT OR VARIANT OR SUBSTITUT?)(S) L2

=> S cyanohydrin (s) L3
L4 44 CYANOHYDRIN (S) L3

=> S (cassava or manihot) (s) L4
L5 23 (CASSAVA OR MANIHOT) (S) L4

=> S (cassava or manihot) and L4
L6 29 (CASSAVA OR MANIHOT) AND L4

=> dup rem L6
PROCESSING COMPLETED FOR L6
L7 13 DUP REM L6 (16 DUPLICATES REMOVED)

=> D ibib abs L7 1-13

L7 ANSWER 1 OF 13 USPATFULL on STN
ACCESSION NUMBER: 2008:143550 USPATFULL <<LOGINID::20081117>>
TITLE: Novel Modified S-Hydroxynitrile Lyase
INVENTOR(S): Ichige, Eita, Chiba, JAPAN
Semba, Hisashi, Ibaraki, JAPAN
Shijuku, Toshiaki, Chiba, JAPAN
Harayama, Shigeaki, Chiba, JAPAN

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 20080124784	A1	20080529
APPLICATION INFO.:	US 2005-594732	A1	20050330 (10)
	WO 2005-JP6730		20050330
			20060929 PCT 371 date

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2004-105642	20040331

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP, 901 NEW YORK AVENUE, NW, WASHINGTON, DC, 20001-4413, US
NUMBER OF CLAIMS: 12
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 21 Drawing Page(s)
LINE COUNT: 3024
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention relates to S-hydroxynitrile lyase having excellent tolerance to heat, organic solvents, and the like, which is obtained by

modifying at least one amino acid in the helix D3', helix A, and .beta.-sheet 2 domains in the amino acid sequence of wild-type S-hydroxynitrile lyase.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 2 OF 13 Elsevier BIOBASE COPYRIGHT 2008 Elsevier Science B.V. on STN DUPLICATE
ACCESSION NUMBER: 2008085250 ESBIOBASE <<LOGINID::20081117>>
TITLE: Hydroxynitrile lyase catalyzed cyanohydrin synthesis at high pH-values
AUTHOR: Von Langermann J.; Guterl J.-K.; Pohl M.; Wajant H.; Kragl U.
CORPORATE SOURCE: U. Kragl, Institut fur Chemie, Universitat Rostock, Albert-Einstein-Str. 3a, 18059 Rostock, Germany. E-mail: udo.kragl@uni-rostock.de
SOURCE: Bioprocess and Biosystems Engineering, (2008), 31/3 (155-161), 28 reference(s) CODEN: BBEIBV ISSN: 1615-7591
DOCUMENT TYPE: Journal; Article
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The application of unusual high pH-values within enzymatic ***cyanohydrin*** synthesis has been investigated. Usually enzymatic ***cyanohydrin*** synthesis in two-phase systems requires low pH-values within the aqueous phase to suppress the non-enzymatic side reaction. In contrast, we investigated the usage of pH-values above pH 6 by using the highly enantioselective (S)-selective ***hydroxynitrile*** ***lyase*** from ***Manihot*** esculenta. With these unusual reaction conditions also the unfavorable substrate 3-phenoxy-benzaldehyde can be converted by the wild type enzyme with excellent conversion and enantiomeric excess yielding pure (S)-3-phenoxy-benzaldehyde ***cyanohydrin*** with an enantiomeric excess of 97%. Although the ***variant*** MeHNL-W128A shows a higher activity with respect to this reaction, the enantioselectivity was reduced (85% e.e.(S)). Additionally, a new continuous spectroscopic ***cyanohydrin*** assay monitoring the formation of 3-phenoxy-benzaldehyde ***cyanohydrin*** was developed. .COPYRGT. 2008 Springer-Verlag.

L7 ANSWER 3 OF 13 WPIDS COPYRIGHT 2008 THOMSON REUTERS on STN
ACCESSION NUMBER: 2007-361592 [34] WPIDS
DOC. NO. CPI: C2007-131327 [34]
TITLE: Novel ***modified*** S- ***hydroxynitrile*** ***lyase*** SHNL having acid resistance and obtained by ***substituting*** amino acids in wild-type SHNL sequence derived from ***cassava*** or para rubber tree, useful for producing optically active ***cyanohydrin***
DERWENT CLASS: B05; D16; E16
INVENTOR: HARAYAMA S; ICHIGE E; SEMBA H; SHIJUKU T; SENBA T; YOSOKUT
PATENT ASSIGNEE: (JAPC-C) NIPPON SHOKUBAI CO LTD; (DOKU-N) DOKURITSU GYOSEI HOJIN SEIHIN HYOKA GIJU; (NATE-N) NAT INST TECHNOLOGY & EVALUATION
COUNTRY COUNT: 116

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2007037354	A1	20070405	(200734)*	JA	65	[26]
JP 2007089513	A	20070412	(200734)	JA	33	
EP 1944366	A1	20080716	(200849)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2007037354	A1	WO 2006-JP319422	20060929

JP 2007089513 A JP 2005-285049 20050929
EP 1944366 A1 EP 2006-810828 20060929
EP 1944366 A1 WO 2006-JP319422 20060929

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1944366	A1 Based on	WO 2007037354 A

PRIORITY APPLN. INFO: JP 2005-285049 20050929
AN 2007-361592 [34] WPIDS
AB WO 2007037354 A1 UPAB: 20070529
NOVELTY - A modified S-hydroxynitrile lyase (SHNL) obtained by substituting at least one amino acid chosen from amino acid at position 36, 140 and 209 in amino acid sequence (SEQ ID No. 2) of wild-type SHNL derived from ***cassava*** (***Manihot*** esculenta), or substituting at least one amino acid chosen from amino acid at position 36, 139 and 208 in amino acid sequence (SEQ ID No. 3) of wild-type SHNL derived from para rubber tree (Hevea brasiliensis), is new.
DETAILED DESCRIPTION - A modified S-hydroxynitrile lyase (SHNL) obtained by substituting at least one amino acid chosen from amino acid at position 36, 140 and 209 in amino acid sequence (SEQ ID No. 2) of wild-type SHNL derived from ***cassava*** (***Manihot*** esculenta), where leucine at position 36 is substituted to methionine, threonine at position 140 to isoleucine, and lysine at position 209 to asparagine; or substituting at least one amino acid chosen from amino acid at position 36, 139 and 208 in amino acid sequence (SEQ ID No. 3) of wild-type SHNL derived from para rubber tree (Hevea brasiliensis).
INDEPENDENT CLAIMS are included for the following:
(1) DNA encoding the modified SHNL; and
(2) method for producing the modified SHNL.
USE - For producing optically active cyanohydrin, which involves contacting the modified SHNL with carbonyl compound and cyanide compound (claimed).
ADVANTAGE - The modified SHNL has improved acid resistance compared to wild-type SHNL, and enables efficient production of optically active cyanohydrin by suppressing racemization reaction in acidic conditions.

L7 ANSWER 4 OF 13 WPIDS COPYRIGHT 2008 THOMSON REUTERS on STN
ACCESSION NUMBER: 2006-294347 [30] WPIDS
DOC. NO. CPI: C2006-096253 [30]
TITLE: ***Mutant*** ***hydroxynitrile*** ***lyase*** , useful for efficiently producing large quantities of ***cyanohydrin*** and hydroxycarboxylic acid
DERWENT CLASS: B05; D16
INVENTOR: AKIYAMA T; ASANO Y; SATO E; YU F
PATENT ASSIGNEE: (MITR-C) MITSUBISHI RAYON CO LTD
COUNTRY COUNT: 111

PATENT INFO ABBR.:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
WO 2006041226	A1 20060420 (200630)*	JA	161	[11]	
EP 1811028	A1 20070725 (200750)	EN			
JP 2006541007	X 20080522 (200836)	JA	79		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION DATE
WO 2006041226 A1		WO 2005-JP19360 20051014
EP 1811028 A1		EP 2005-795304 20051014
EP 1811028 A1		WO 2005-JP19360 20051014
JP 2006541007 X		WO 2005-JP19360 20051014
JP 2006541007 X		JP 2006-541007 20051014

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1811028	A1 Based on	WO 2006041226 A
JP 2006541007	X Based on	WO 2006041226 A

PRIORITY APPLN. INFO: JP 2005-58857 20050303
JP 2004-301718 20041015
JP 2004-355766 20041208

AN 2006-294347 [30] WPIDS

AB WO 2006041226 A1 UPAB: 20060510

NOVELTY - A mutant hydroxynitrile lyase (I) comprising at least one amino acid substitution, is new. The amino acid substitution is preferably replacement of histidine 103 of the wild-type sequence by another amino acid and/or replacement of at least one lysine of the wild-type sequence by another amino acid.

DETAILED DESCRIPTION - An improved hydroxynitrile lyase (I) chosen from (a) improved hydroxynitrile lyase obtained by substituting amino acid residue at second position in the wild-type hydroxynitrile lyase with another amino acid, (b) improved hydroxynitrile lyase obtained by substituting amino acid residue at position 103 or histidine at position near 103 in the wild-type hydroxynitrile lyase with another amino acid, (c) improved hydroxynitrile lyase obtained by substituting at least one lysine residue in the wild-type hydroxynitrile lyase with another amino acid, (d) improved hydroxynitrile lyase obtained by substituting amino acid residue at second position and amino acid residue at position 103 or histidine at position near 103 in the wild-type hydroxynitrile lyase with another amino acid, (e) improved hydroxynitrile lyase obtained by substituting amino acid residue at second position and at least one lysine residue in the wild-type hydroxynitrile lyase with another amino acid, (f) improved hydroxynitrile lyase obtained by substituting at least one lysine residue and amino acid residue at position 103 or histidine at position near 103 in the wild-type hydroxynitrile lyase with another amino acid, and (g) improved hydroxynitrile lyase obtained by substituting at least one lysine residue, amino acid residue at second position, and amino acid residue at position 103 or histidine at position near 103 in the wild-type hydroxynitrile lyase with another amino acid.

INDEPENDENT CLAIMS are also included for the following:
(1) improved type hydroxynitrile lyase gene (II) encoding (I);
(2) recombinant vector (III) containing (II);
(3) transformant (IV) obtained by introducing (III) into a host;
(4) culture (V) obtained by cultivating (IV);
(5) producing (M1) cyanohydrin, involves processing ketone or aldehyde compound and a cyanide compound with (I), and extracting cyanohydrin from the processed substance; and
(6) producing hydroxycarboxylic acid, involves hydrolyzing cyanohydrin obtained by (M1).

USE - (I) or (M1) is useful for producing cyanohydrin (claimed), which is useful for synthesizing various optically active intermediates used for the synthesis of alpha hydroxy acid, alpha hydroxy ketone, and beta amino alcohol, and useful in pharmaceuticals. (I) is useful for producing hydroxy carboxylic acid.

ADVANTAGE - (I) has improved hydroxynitrile lyase activity, can be efficiently produced in large quantities, and enables effective production of cyanohydrin.

L7 ANSWER 5 OF 13 USPATFULL on STN
ACCESSION NUMBER: 2005:105041 USPATFULL <<LOGINID::20081117>>
TITLE: Enzyme reaction method and a method for enzymatically producing an optically active cyanohydrin
INVENTOR(S): Semba, Hisashi, Ibaraki, JAPAN
Dobashi, Yukio, Ibaraki, JAPAN
PATENT ASSIGNEE(S): NIPPON SHOKUBAI CO., LTD. (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 20050089977	A1	20050428
APPLICATION INFO.:	US 2004-990053	A1	20041115 (10)

RELATED APPLN. INFO.: Division of Ser. No. US 2001-870821, filed on 1 Jun 2001, PENDING

NUMBER DATE

PRIORITY INFORMATION: JP 2000-166578 20000602
JP 2000-166579 20000602
JP 2000-206130 20000707
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP, 901 NEW YORK AVENUE, NW, WASHINGTON, DC, 20001-4413, US
NUMBER OF CLAIMS: 19
EXEMPLARY CLAIM: 1-10
NUMBER OF DRAWINGS: 4 Drawing Page(s)
LINE COUNT: 1853
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to an enzyme reaction method which comprises performing an enzyme reaction, using an immobilized enzyme having a water content of 10% by weight or more as an enzyme and using an organic solvent substantially immiscible with water as a reaction solvent, under such conditions that a liquid phase forms a homogeneous system without phase separation although it is saturated with water or an aqueous buffer; a method for performing an enzyme reaction using an aldehyde compound as a substrate, which comprises removing a carboxylic acid compound contained in an aldehyde compound by subjecting the aldehyde compound to an alkaline treatment before starting the enzyme reaction; a method for performing an enzyme reaction using an aldehyde compound as a substrate, which comprises reducing a carboxylic acid compound content in the aldehyde compound to 0.1 wt % or less by subjecting the aldehyde compound to an alkaline treatment before starting the enzyme reaction; a method for enzymatically producing an optically active cyanohydrin from a carbonyl compound and prussic acid containing an acidic substance as a stabilizer, which comprises subjecting the prussic acid to a treatment for reducing inhibitory effect of the stabilizer on an enzyme, and performing an enzyme reaction to synthesize the optically active cyanohydrin using the treated prussic acid; a method for enzymatically producing an optically active cyanohydrin, which comprises dissolving prussic acid in an organic solvent substantially immiscible with water to give an organic solution of prussic acid, adding a buffer to this solution in a saturation amount or more, mixing, collecting the organic phase, and performing an enzyme reaction to synthesize the optically active cyanohydrin using the organic phase as prussic acid; as well as a method for enzymatically producing an optically active cyanohydrin, which comprises performing distillation of a reaction solution after completion of an enzyme reaction to separate and collect unreacted prussic acid and organic solvent therefrom, and repeatedly using the collected prussic acid and organic solvent at least once.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 6 OF 13 WPIDS COPYRIGHT 2008 THOMSON REUTERS on STN
ACCESSION NUMBER: 2005-725510 [74] WPIDS
DOC. NO. CPI: C2005-220821 [74]
TITLE: Novel ***modified*** S- ***hydroxynitrile*** ***lyase*** having improved heat tolerance, and obtained by ***modifying*** amino acid in helix D3', helix A and beta-sheet 2 domains in wild-type S- ***hydroxynitrile*** ***lyase*** , useful for producing ***cyanohydrin***
DERWENT CLASS: B04; B05; D16
INVENTOR: HARAYAMA S; ICHIGE E; SEMBA H; SHIJUKU T; HARAYAMA S I T; SENBA T; SHIJUKU T I T; YOSOKU T
PATENT ASSIGNEE: (JAPC-C) NIPPON SHOKUBAI CO LTD; (DOKU-N) DOKURITSU GYOSEI HOJIN SEIHIN HYOKA GIJU; (HARA-I) HARAYAMA S; (ICHI-I) ICHIGE E; (SEMB-I) SEMBA H; (SHIJ-I) SHIJUKU T
COUNTRY COUNT: 108

PATENT INFO ABBR.:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC

WO 2005095602 A1 20051013 (200574)* EN 120[21]
JP 2005312431 A 20051110 (200574) JA 32
EP 1730274 A1 20061213 (200701) EN
US 20080124784 A1 20080529 (200838) EN

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION DATE
WO 2005095602 A1		WO 2005-JP6730 20050330
JP 2005312431 A		JP 2005-21721 20050128
EP 1730274 A1		EP 2005-728634 20050330
EP 1730274 A1		WO 2005-JP6730 20050330
US 20080124784 A1		WO 2005-JP6730 20050330
US 20080124784 A1		US 2006-594732 20060929

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1730274	A1 Based on	WO 2005095602 A

PRIORITY APPLN. INFO: JP 2004-105642 20040331
AN 2005-725510 [74] WPIDS
AB WO 2005095602 A1 UPAB: 20060125
NOVELTY - Modified S-hydroxynitrile lyase (SHNL) (I) obtained by modifying one or more amino acid in the helix D3', helix A, and beta-sheet 2 domains in the amino acid sequence of wild-type SHNL, and having any one of 13 fully defined 258 amino acid (SEQ ID No. 2, 6, 8, 16, 20, 22, 26, 28, 32, 36, 40, 42 or 44) sequences given in the specification, is new.

DETAILED DESCRIPTION - Modified S-hydroxynitrile lyase (SHNL) (I) that is obtained by modifying one or more amino acid in the helix D3', helix A, and beta-sheet 2 domains in the amino acid sequence of wild-type SHNL, comprises:

(a) one or more amino acid substitution in the amino acid sequence having a fully defined 258 amino acid (SEQ ID No. 2) sequence given in the specification, where the substitution is chosen from substitution from lysine to aspartic acid, glutamic acid or asparagine at position 21, substitution from glycine to aspartic acid or glutamic acid at position 165, substitution from valine to leucine at position 173, substitution from methionine to leucine at position 174, and substitution from threonine to aspartic acid, glutamic acid or serine at position 163, and

(b) has any one of 12 fully defined 258 amino acid (SEQ ID No. 6, 8, 16, 20, 22, 26, 28, 32, 36, 40, 42 or 44) sequences given in the specification.

INDEPENDENT CLAIMS are also included for:

(1) DNA (II) encoding the amino acid sequence of (I) or encoding SEQ ID No. 6, 8, 16, 20, 22, 26, 28, 32, 36, 40, 42 or 44;

(2) preparation of (I); and

(3) improving stability of (I), by modifying one or more amino acid in the helix D3', helix A, and beta-sheet 2 domains in the amino acid sequence of wild-type SHNL.

USE - (I) is useful for producing optically active cyanohydrin, which involves allowing (I) to react with a carbonyl compound and cyanide (claimed). (I) is useful for industrial production of optically active cyanohydrin. (I) is useful as an enzyme immobilized on an adequate inorganic carrier, and for synthesizing cyanohydrin.

ADVANTAGE - (I) has improved and excellent heat tolerance, stability and organic solvent tolerance. (I) can be purified easily and cost-effectively.

L7 ANSWER 7 OF 13 Elsevier BIOBASE COPYRIGHT 2008 Elsevier Science B.V. on STN
ACCESSION NUMBER: 2005166675 ESBIOBASE <<LOGINID::20081117>>
TITLE: Inversion of stereoselectivity by applying mutants of the hydroxynitrile lyase from ***Manihot*** esculenta
AUTHOR: Buhler H.; Miehlich B.; Effenberger F.
CORPORATE SOURCE: Dr. F. Effenberger, Institut fur Organische Chemie, Universitat Stuttgart, Pfaffenwaldring 55, 70569

Stuttgart, Germany.
E-mail: franz.effenberger@oc.uni-stuttgart.de
SOURCE: ChemBioChem, (2005), 6/4 (711-717), 31 reference(s)
CODEN: CBCHFX ISSN: 1439-4227
DOCUMENT TYPE: Journal; Article
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The influence of Trp128- ***substituted*** mutants of the ***hydroxynitrile*** ***lyase*** from ***Manihot*** esculenta (MeHNL) on the stereoselectivity of MeHNL-catalyzed HCN additions to aldehydes with stereogenic centers, which yield the corresponding cyanohydrins, is described. In rac-2-phenylpropionaldehyde (rac-1) reactions, wild-type (wtMeHNL) and all MeHNL Trp128 mutants are highly (S)-selective toward the (R) enantiomer of rac-1; this results exclusively in (2S,3R)- ***cyanohydrin*** ((2S,3R)-2) with >=96% de. The (S) enantiomer of rac-1, however, only reacts (S)-selectively with wtMeHNL to give (2S,3S)-2 with 80% de, whereas with Trp128 mutants, (R) selectivity increases with decreasing size of the amino acids exchanged. The MeHNL W128A ***mutant*** is exclusively (R)-selective, resulting in (2R,3S)-2 with 86% de. The reaction behavior of rac-phenylbutyraldehyde (rac-5) is comparable with rac-1, which also inverts the stereoselectivity from (S) to (R) when the enzyme is exchanged from wtMeHNL to the W128A ***mutant*** . Stereogenic centers not adjacent to the aldehyde group, as in 7 and 9, do not influence the stereoselectivity of MeHNL catalysis, and (S) selectivity is observed in all cases. Stereoselectivity and inversion of stereoselectivity of MeHNL Trp128 ***mutant*** -catalyzed ***cyanohydrin*** formation can be explained and rationalized with crystal-structure-based molecular modeling. .COPYRGT. 2005 Wiley-VCH Verlag GmbH & Co. KGaA.

L7 ANSWER 8 OF 13 Elsevier BIOBASE COPYRIGHT 2008 Elsevier Science B.V. on STN DUPLICATE
ACCESSION NUMBER: 2003077165 ESBIOBASE <<LOGINID::20081117>>
TITLE: Substrate specificity of mutants of the hydroxynitrile lyase from ***Manihot*** esculenta
AUTHOR: Buhler H.; Effenberger F.; Forster S.; Roos J.; Wajant H.
CORPORATE SOURCE: Dr. F. Effenberger, Institut fur Organische Chemie, Universitat Stuttgart, Pfaffenwaldring 55, 70569 Stuttgart, Germany.
E-mail: franz.effenberger@po.uni-stuttgart.de
SOURCE: ChemBioChem, (03 MAR 2003), 4/2-3 (211-216), 30 reference(s)
CODEN: CBCHFX ISSN: 1439-4227
DOCUMENT TYPE: Journal; Article
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Several tryptophan 128- ***substituted*** mutants of the ***hydroxynitrile*** ***lyase*** from ***Manihot*** esculenta (MeHNL) are constructed and applied in the MeHNL-catalyzed addition of HCN to various aromatic and aliphatic aldehydes as well as to methyl and ethyl ketones to yield the corresponding cyanohydrins. The mutants (especially MeHNL-W128A) are in most cases superior to the wild-type (wt) enzyme when diisopropyl ether is used as the solvent. ***Substitution*** of tryptophan 128 by an alanine residue enlarges the entrance channel to the active site of MeHNL and thus facilitates access of sterically demanding substrates to the active site, as clearly demonstrated for aromatic aldehydes, especially 3-phenoxybenzaldehyde. These experimental results are in accordance with the X-ray crystal structure of MeHNL-W128A. Aliphatic aldehydes, surprisingly, do not demonstrate this reactivity dependence of mutants on substrate bulkiness. Comparative reactions of 3-phenoxybenzaldehyde with wtMeHNL and MeHNL-W128A in both aqueous citrate buffer and a two-phase system of water/methyl tert-butyl ether again reveal the superiority of the ***mutant*** enzyme: 3-phenoxybenzaldehyde was converted quantitatively into a ***cyanohydrin*** nearly independently of the amount of enzyme present, with a space-time yield of 57 g L.sup.-.sup.1 h.sup.-.sup.1.

L7 ANSWER 9 OF 13 USPATFULL on STN
ACCESSION NUMBER: 2002:12267 USPATFULL <<LOGINID::20081117>>
TITLE: Enzyme reaction method and a method for enzymatically producing an optically active cyanohydrin
INVENTOR(S): Semba, Hisashi, Ibaraki, JAPAN
Dobashi, Yukio, Ibaraki, JAPAN
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd. (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 20020006646	A1	20020117
	US 7078225	B2	20060718
APPLICATION INFO.:	US 2001-870821	A1	20010601 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2000-166578	20000602
	JP 2000-166579	20000602
	JP 2000-206130	20000707

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Finnegan, Henderson, Farabow,, Garrett & Dunner, L.L.P., 1300 I Street, N.W., Washington, DC, 20005-3315
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Page(s)
LINE COUNT: 1898
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to an enzyme reaction method which comprises performing an enzyme reaction, using an immobilized enzyme having a water content of 10% by weight or more as an enzyme and using an organic solvent substantially immiscible with water as a reaction solvent, under such conditions that a liquid phase forms a homogeneous system without phase separation although it is saturated with water or an aqueous buffer; a method for performing an enzyme reaction using an aldehyde compound as a substrate, which comprises removing a carboxylic acid compound contained in an aldehyde compound by subjecting the aldehyde compound to an alkaline treatment before starting the enzyme reaction; a method for performing an enzyme reaction using an aldehyde compound as a substrate, which comprises reducing a carboxylic acid compound content in the aldehyde compound to 0.1 wt % or less by subjecting the aldehyde compound to an alkaline treatment before starting the enzyme reaction; a method for enzymatically producing an optically active cyanohydrin from a carbonyl compound and prussic acid containing an acidic substance as a stabilizer, which comprises subjecting the prussic acid to a treatment for reducing inhibitory effect of the stabilizer on an enzyme, and performing an enzyme reaction to synthesize the optically active cyanohydrin using the treated prussic acid; a method for enzymatically producing an optically active cyanohydrin, which comprises dissolving prussic acid in an organic solvent substantially immiscible with water to give an organic solution of prussic acid, adding a buffer to this solution in a saturation amount or more, mixing, collecting the organic phase, and performing an enzyme reaction to synthesize the optically active cyanohydrin using the organic phase as prussic acid; as well as a method for enzymatically producing an optically active cyanohydrin, which comprises performing distillation of a reaction solution after completion of an enzyme reaction to separate and collect unreacted prussic acid and organic solvent therefrom, and repeatedly using the collected prussic acid and organic solvent at least once.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 10 OF 13 Elsevier BIOBASE COPYRIGHT 2008 Elsevier Science B.V. on STN DUPLICATE
ACCESSION NUMBER: 2002007378 ESBIOBASE <<LOGINID::20081117>>
TITLE: Structure determinants of substrate specificity of hydroxynitrile lyase from ***Manihot*** esculenta
AUTHOR: Lauble H.; Miehlich B.; Forster S.; Kobler C.; Wajant H.; Effenberger F.

CORPORATE SOURCE: H. Lauble, Institut fur Organische Chemie, Universitat Stuttgart, Pfaffenwaldring 55, D-70569 Stuttgart, Germany.
E-mail: PeterLauble@t-online.de
SOURCE: Protein Science, (2002), 11/1 (65-71), 20 reference(s)
CODEN: PRCIEI ISSN: 0961-8368
DOCUMENT TYPE: Journal; Article
COUNTRY: United States
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Tryptophan 128 of ***hydroxynitrile*** ***lyase*** of ***Manihot*** esculenta (MeHNL) covers a significant part of a hydrophobic channel that gives access to the active site of the enzyme. This residue was therefore ***substituted*** in the ***mutant*** MeHNL-W128A by alanine to study its importance for the substrate specificity of the enzyme. Wild-type MeHNL and MeHNL-W128A showed comparable activity on the natural substrate acetone ***cyanohydrin*** (53 and 40 U/mg, respectively). However, the specific activities of MeHNL-W128A for the unnatural substrates mandelonitrile and 4-hydroxymandelonitrile are increased 9-fold and .apprx.450-fold, respectively, compared with the wild-type MeHNL. The crystal structure of the MeHNL-W128A substrate-free form at 2.1 .ANG. resolution indicates that the W128A ***substitution*** has significantly enlarged the active-site channel entrance, and thereby explains the observed changes in substrate specificity for bulky substrates. Surprisingly, the MeHNL-W128A-4-hydroxybenzaldehyde complex structure at 2.1 .ANG. resolution shows the presence of two hydroxybenzaldehyde molecules in a sandwich type arrangement in the active site with an additional hydrogen bridge to the reacting center.

L7 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 4
ACCESSION NUMBER: 2001:454037 CAPLUS <<LOGINID::20081117>>
DOCUMENT NUMBER: 135:164024
TITLE: Mechanistic aspects of cyanogenesis from active-site ***mutant*** Ser80Ala of ***hydroxynitrile*** ***lyase*** from ***Manihot*** esculenta in complex with acetone ***cyanohydrin***
AUTHOR(S): Lauble, Hanspeter; Miehlich, Burkhard; Forster, Siegfried; Wajant, Harald; Effenberger, Franz
CORPORATE SOURCE: Institut fur Organische Chemie der Universitat Stuttgart, Stuttgart, D-70569, Germany
SOURCE: Protein Science (2001), 10(5), 1015-1022
CODEN: PRCIEI; ISSN: 0961-8368
PUBLISHER: Cold Spring Harbor Laboratory Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The structure and function of hydroxynitrile lyase from ***Manihot*** esculenta (MeHNL) were analyzed by x-ray crystallog. and site-directed mutagenesis. The crystal structure of the MeHNL-S80A mutant was refined to an R-factor of 18.0% against diffraction data to 2.1-.ANG. resoln. The 3-dimensional structure of the MeHNL-S80A-acetone cyanohydrin complex was detd. at 2.2-.ANG. resoln. and refined to an R-factor of 18.7%. To elucidate the role of Thr-11 and Cys-81 in the catalytic mechanism, mutants T11A and C81A were constructed and kinetic values were detd. The Km for mutant C81A was indistinguishable from that of the wild-type enzyme, whereas that for mutant T11A could not be detd. because of its poor enzymic activity. From these results, the roles of Cys-81 and Thr-11 in the enzyme were discussed. Combined with structural data, the results supported a mechanism for cyanogenesis in which His-236 as a general base abstrs. a proton from Ser-80, thereby allowing proton transfer from the OH group of acetone cyanohydrin to Ser-80. The His-236 imidazolium cation then facilitates the leaving of the nitrile group by proton donation.
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:189013 CAPLUS <<LOGINID::20081117>>
Correction of: 2000:12726
DOCUMENT NUMBER: 132:191223
Correction of: 132:60999

TITLE: (S)-hydroxynitrile lyases with improved substrate binding arising from modifications affecting the substrate binding site and their uses
INVENTOR(S): Effenberger, Franz; Lauble, Peter; Buhler, Holger; Wajant, Harald; Forster, Siegfried; Schwab, Helmut; Kratky, Christoph; Wagner, Ulrike; Steiner, Ernst
PATENT ASSIGNEE(S): Dsm Fine Chemicals Austria Gmbh, Austria
SOURCE: Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 969095	A2	20000105	EP 1999-111574	19990615
EP 969095	A3	20020828		
EP 969095	B1	20040929		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 9801159	A	20000715	AT 1998-1159	19980702
AT 407397	B	20010226		
AT 278022	T	20041015	AT 1999-111574	19990615
ES 2227935	T3	20050401	ES 1999-111574	19990615
CA 2277594	A1	20000102	CA 1999-2277594	19990630
JP 2000125886	A	20000509	JP 1999-188094	19990701
US 6319697	B1	20011120	US 1999-345773	19990701

PRIORITY APPLN. INFO.: AT 1998-1159 A 19980702
EP 1999-111574 A 19990615

AB Plant (S)-hydroxynitrile lyases that bind substrates more efficiently have modifications in the hydrophobic channel leading to the substrate binding site. The channel is modified by replacing some of the bulkier hydrophobic amino acids that partially block the channel with less bulky ones. Specifically, a tryptophan in the channel (position 128 in the Hevea brasiliensis and ***Manihot*** esculenta enzyme) may be substituted by alanine, glycine, valine, or even phenylalanine. The substituted M. esculenta converted 3-phenoxybenzaldehyde to (S)-3-phenoxybenzaldehyde cyanohydrin with an e.e. of 97% compared to 97.03% for the wild type enzyme. Yield of the product was 88.5% after 2h using the wild-type enzyme and 97% after 1.5 h using the substituted enzyme.

L7 ANSWER 13 OF 13 SCISEARCH COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 5
ACCESSION NUMBER: 1996:748457 SCISEARCH <<LOGINID::20081117>>
THE GENUINE ARTICLE: VN180
TITLE: Identification of potential active-site residues in the hydroxynitrile Lyase from ***Manihot*** esculenta by site-directed mutagenesis
AUTHOR: Wajant H (Reprint); Pfizenmaier K
CORPORATE SOURCE: UNIV STUTTGART, INST CELL BIOL & IMMUNOL, ALLMANDRING 31, D-70569 STUTTGART, GERMANY (Reprint)
COUNTRY OF AUTHOR: GERMANY
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (18 OCT 1996) Vol. 271, No. 42, pp. 25830-25834.
ISSN: 0021-9258.
PUBLISHER: AMER SOC BIOCHEMISTRY MOLECULAR BIOLOGY INC, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 25
ENTRY DATE: Entered STN: 1996
Last Updated on STN: 1996
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The ***hydroxynitrile*** ***lyase*** from ***cassava*** (***Manihot*** esculenta Crantz) (EC 4.1.2.37) catalyzes the decomposition of the achiral alpha-hydroxynitrile acetone ***cyanohydrin*** into HCN and acetone during cyanogenesis of damaged

plants, This enzyme can also be used for stereoselective synthesis of a wide array of (S)-cyanohydrins by addition of HCN to aldehydes or ketones, Optically active cyanohydrins are interesting intermediates for the synthesis of alpha-hydroxy acids, alpha-hydroxy ketones, or beta-ethanolamines, all of which are important building blocks in organic synthesis, Inhibition of ***hydroxynitrile*** ***lyase*** from M. esculenta (MeHNL) by serine- and histidine- ***modifying*** reagents suggests involvement of active site seryl and histidyl residues. Furthermore, serine 80 of MeHNL is part of the active site motif Gly-X-Ser-X-Gly/Ala, often considered as the hallmark of catalytic triads having independently evolved in four groups of enzymes: the alpha/beta hydrolase fold enzymes, subtilisins, the cysteine proteases, and the eukaryotic serine proteases, By site-directed mutagenesis, three residues critical for enzyme activity have been identified: serine 80, aspartic acid 208, and histidine 236. These residues may be directly involved in MeHNL-catalyzed decomposition of cyanohydrins, providing evidence for a catalytical triad in HNLs, too. The order of the catalytic triad residues in the primary sequence of MeHNL is nucleophile-histidine-acid, suggesting that MeHNL belongs to the alpha/beta hydrolase fold group of enzymes, In contrast to all other enzymes having a catalytical triad, HNLs catalyze no net hydrolytic reactions.

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INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS, CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 12:00:09 ON 17 NOV 2008

SEA ((HYDROXYNITRILE (W) LYASE) OR HYDROXYNITRILASE)

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43	FILE AGRICOLA
2	FILE ANABSTR
1	FILE ANTE
44	FILE BIOENG
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59	FILE BIOTECHNO
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319	FILE CAPLUS
31	FILE CEABA-VTB
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1	FILE CROPB
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568	FILE DGENE
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115	FILE EMBASE
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11	FILE FSTA
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71	FILE PASCAL
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240	FILE SCISEARCH
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76	FILE USPATFULL
1	FILE USPATOLD

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            18  FILE USPAT2
            46  FILE WPIDS
             1  FILE WPIFV
            46  FILE WPINDEX
             1  FILE NLDB
L1              QUE ((HYDROXYNITRILE (W) LYASE) OR HYDROXYNITRILASE)
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   ON 17 NOV 2008
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L3           157 S (MODIF? OR MUTANT OR VARIANT OR SUBSTITUT?)(S) L2
L4            44 S CYANOHYDRIN (S) L3
L5            23 S (CASSAVA OR MANIHOT) (S) L4
L6            29 S (CASSAVA OR MANIHOT) AND L4
L7            13 DUP REM L6 (16 DUPLICATES REMOVED)

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